Weekly Report

2017.10.16-2017.10.22

1.This Week

Summarization Form

Task	Progress	Time
Waveline	System: The system is able to do user study now and the questionnaire is finished for a prior user study. Paper： Finding a new case about generators and wait for user study results.	10.30
NSVA	Waiting to be accepted.	10.30
Power Grid New Projects	Reading materials and papers.	
Survey	Not started yet.	

Wavelines

1.Fix bugs of the system (bugs of brushing, choosing interaction and the scale mechanism of the force directed layout), change the color map of the glyph design and system interface together with Zhang wei, Lao Tianyi and Lin liwen.
2.The system is now ready to do the upcoming user study and the questionnaire is finished (designed into 3 different parts, one for functional questions, one for scoring, and one for suggestions).
3.Three pictures in the paper are re-made (by Chen Zexian).
4.Guo Fangzhou gives some advice for the task part in the paper and revise this part again according to his advice.

Power Grid New Projects

1. Talk to Wang Qi about the efficiency issue about the original system and discuss about ways to speed it up. We found the most time wasting part of the system coding is the color map of each node of the wavelines view. So we reduce the ‘stop’ command from 3,000 times to 300 times. And now the wavelines can be rendered in 1 second(about 0.5s). But the rotor angle view in the original system remains very slow because of the huge amount of data. And there barely exists a way to speed that up.
2.Try the PSASP program given by Dr. Huang to learn the possible outputs of a power flow calculation in the power grid and the parameters to be adjusted. The calculation cases given by Dr. Huang are all convergence.
3.Manage the useful materials related to Power Flow Visualization Project and send it to Prof. Zhang in Ningbo.Figure about the requirements and goals of the power flow visualization project (Because there’re five students in Ningbo doing this project so the goals are expanded), including:

- analyze the iterative steps of solving nonlinear equations with the support of visual evidence
- analyze the influence of parameter adjustment (there are groups of different parameters, roughly estimated of about 20 parameters) to the solutions of nonlinear equations. (Very similar to the open box visual analysis of machine learning models.)
- integrated with the structure of the solving process
- visualize the results of power flow calculation data

I'm going to Ningbo this Tuesday to explain the background and requirements to the students there.

Others

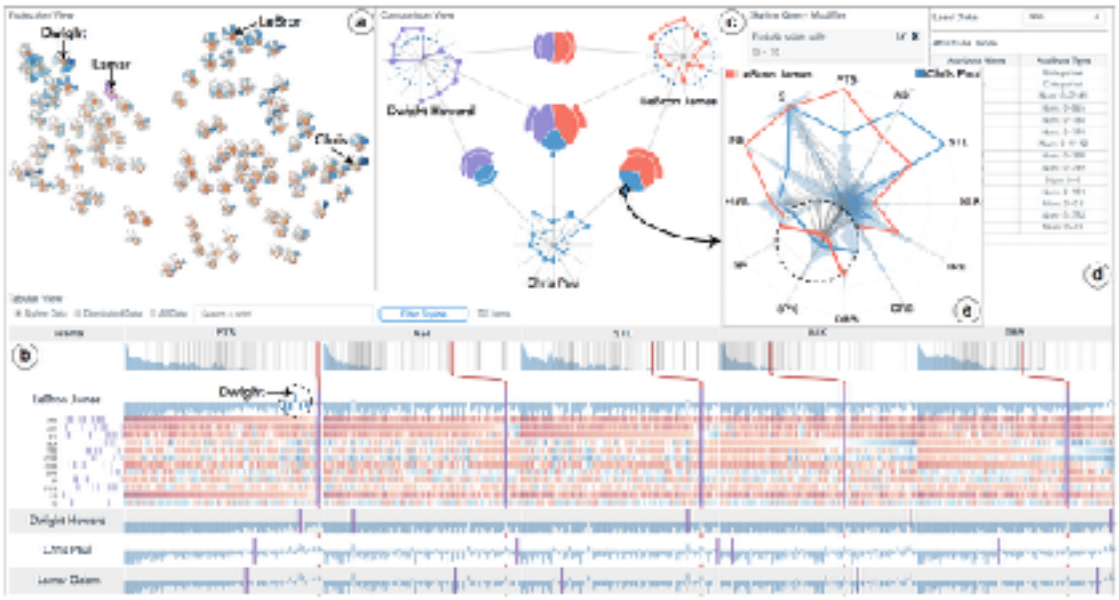
1.Go to the finance department to deal with the reimbursement of the VIS week. (Takes the Thursday afternoon and Friday morning). Advices for international conference reimbursement:

- Things need to signed and sealed in the lab or CS college: Visa material, Insurance material
- Insurance material includes the receipt and the Insurance policy.
- Accommodation receipts need to pay attention to the number of people.
- It could be much faster if everyone manages their own receipts before handing over to me.

Paper Reading

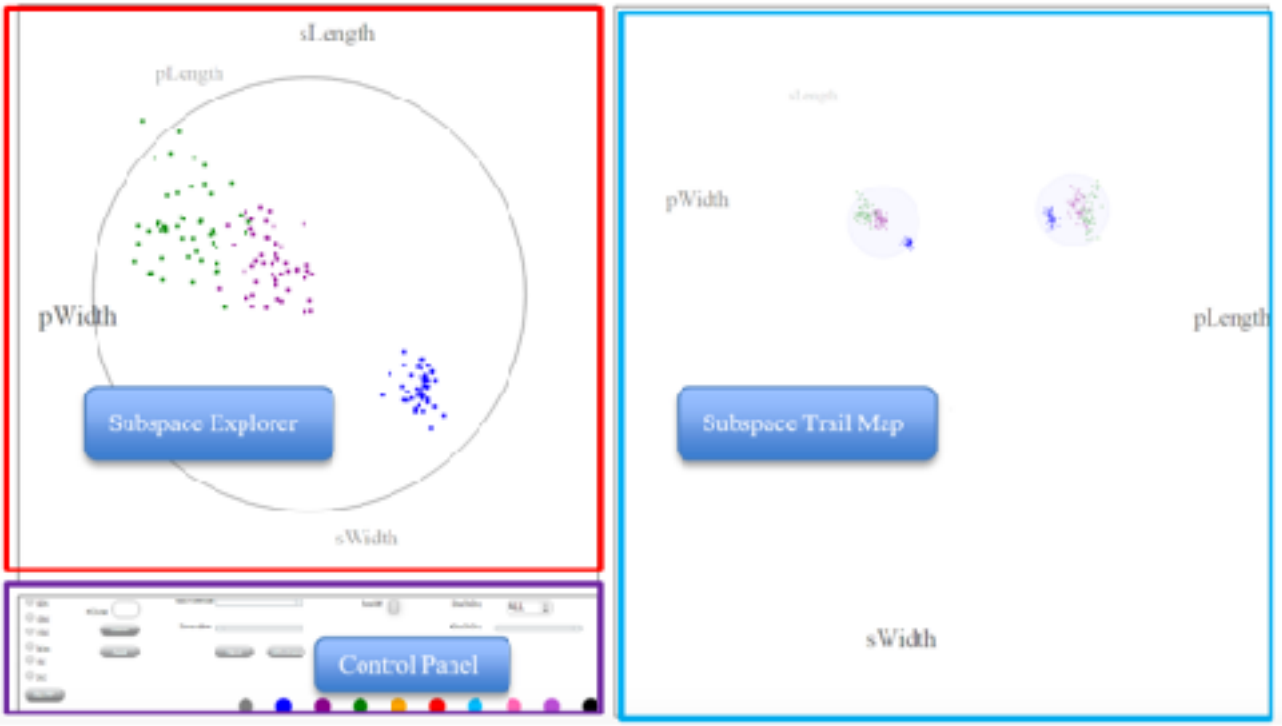
1.SkyLens: Visual Analysis of Skyline on Multi-dimensional Data

This paper propose a visual analytic system which reveals the superiority of skyline points calculated by the classical skyline algorithm. This is a typical paper that solves a real problem, contains small smart visual designs, supports analysis from different perspectives and different level of scales. In our waveline paper, we lack a process of analyzing from a general overview to a specific point (we're always presenting the entire power grid whatever our scale is). And that could be a weakness of our paper, I think.



2.The Subspace Voyager: Exploring High-Dimensional Data along a Continuum of Salient 3D Subspace

This paper presents a a framework that decomposes a high-dimensional data space into a continuum of generalized 3D subspaces to help human understand spaces exceeding three spatial dimensions. The subspaces is selected by two different ways at the same time: 1.random view generation and 2. subspace clustering. （Feels very similar to the idea of the SVM paper of Ma Yuxin.）



2.TODO

1. Waveline system and paper writing.
2. other projects of power grid started.